CLAIMS

1. Powder composition including an iron or iron based powder wherein less than about 5 % of the powder particles have a size below 45 μm and a lubricating amount of an alkylakoxy or polyetheralkoxy silane, wherein the alkyl group of the alkylalkoxy silane and the polyether chain of the polyetheralkoxy silane include between 8 and 30 carbon atoms, and the alkoxi group includes 1-3 carbon atoms.

2. Composition according to claim 1 wherein the alkyl group and polyether chain of the alkylalkoxy or polyetheralkoxy silane has between 10 and 24 carbon atoms.

3. Composition according to claim 1 or 2 wherein the silane is selected from the group consisting of octyl-tri-metoxy silane, hexadecyl-tri-metoxy silane, polyethyleneether-trimetoxy silane with 10 ethylene ether groups.

4. Composition according to any one of the claims 1-3, wherein the alkoxy silane is present in an amount of 0.05- 0.5 %, preferably between 0.1- 0. 4 % and most preferably between 0.15- 0.3 % by weight.

5. Composition according to any one of the claims 1-4,. wherein at least 40 %, preferably at least 60 % of the iron or iron -based powder consists of particles having a particle size above about 106 μm.

6. Composition according to any one of the claims 1-5, wherein at least 40 % ,preferably at least 60 % of the iron-based powder consists of particles having a particle size above about 212 μm.

7. Composition according to any one of the claims 1-6 further including up to 1 % by weight of graphite.

8. Composition according to any one of the claims further including alloying elements in an amount up to 10 % by weight.

9. Composition according to claim 8 wherein the alloying elements are selected form the group consisting of Mn, Cu, Ni, Cr, Mo, V, Co, W, Nb, Ti, Al, P, S and B.

10. Process for the preparation of high density green compacts comprising the following steps:
    - providing an iron-based powder composition according to any one of the claims 1- 9;
    - optionally mixing said composition with graphite and other additives;
    - uniaxially compacting the powder in a die at a compaction pressure of at least about 800 MPa; and
    - ejecting the green body.

11. Powder composition including an iron or iron based powder and a lubricating amount of an alkylakoxy or polyetheralkoxy silane, wherein the alkyl group of the alkyl-alkoxy silane and the polyether chain of the polyetheralkoxy silane include between 8 and 30 carbon atoms and the alkoxi group includes 1-3 carbon atoms.

12. Composition according to claim 11 wherein the alkyl group or polyether chain of the alkylalkoxy or polyetheralkoxy silane has between 10 and 24 carbon atoms.

13. Composition according to claim 11 or 12 wherein the silane is selected from the group consisting of octyl-tri-metoxy silane, hexadecyl-tri-metoxy silane, polyethyleneether-trimetoxy silane with 10 ethylene ether groups.

14. Composition according to any one of the claims 11-13, wherein the alkoxy silane is present in an amount of 0.05- 0.5 %, preferably between 0.1- 0. 4 % and most preferably between 0.15- 0.3 % by weight.

15. Composition according to any one of the claims 11-14 further including up to 1 % by weight of graphite.

16. Composition according to any one of the claims 11-15 further including up to 10 % by weight of alloying elements.

17. Composition according to claim 16 wherein the alloying elements are selected form the group consisting of Mn, Cu, Ni, Cr, Mo, V, Co, W, Nb, Ti, Al, P, S and B.